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Docket No. F-9183

Ser. No. 10/588,355

AMENDMENTS TO THE CLAIMS:

Please replace the claims with the claims provided in the listing below wherein status, amendments, additions and cancellations are indicated.

1. - 3. (Cancelled).

4. (Currently Amended) A light alloy wheel comprising an outer rim having a tubular rim part, the tubular rim part comprising: a bead seat, a hump, a slope wall and an ornamental wall, the ornamental wall being arranged on a side opposite to a tire-mounting side of the outer rim and bridging from a first juncture (J1) between a first extension (E1) from a tire-mounting-side contour (BTC) of the bead seat and an exterior contour of the rim to a second juncture (J2) between a second extension (E2) from a tire-mounting-side contour (STC) of the slope wall and the exterior contour of the rim wherein

a cavity is defined by the bead seat, the hump, the slope wall and the ornamental wall,

an imaginary solid rim part is assumed as defined by the first and second junctures and consists of the bead seat, the hump and the slope wall, and,

a shape and a thickness of the bead seat, the hump, the slope wall and ornamental wall of the tubular rim part are set so that:

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(a) a ratio of cross-sectional area of the tubular rim part to that of the solid rim part is no more than 100%;

(b) a first geometrical moment of inertia of the tubular rim part about an axis that is parallel to an axis of the light alloy wheel and runs through a centroid of a cross section of the tubular rim part is no less than a geometrical moment of inertia of the imaginary solid rim part about an axis that is parallel to the axis of the light alloy wheel and runs through a centroid of a cross section of the solid rim part;

(c) a second geometrical moment of inertia of the tubular rim part about an axis that is perpendicular to the axis of the light alloy wheel and runs through the centroid of the cross section of the tubular rim part is no less than a geometrical moment of inertia of the imaginary solid rim part about an axis that is perpendicular to the axis of the light alloy wheel axis and runs through the centroid of the cross section of the solid rim part; [[and]]

(d) the thickness of the bead seat, the hump, the slope wall and ornamental wall of the tubular rim part is in a range of 2.3 mm to 4 mm; and

(e) the cavity is substantially parallelepipedal in cross section; and

the light alloy wheel is formed by casting technique and configured for a four-wheel automobile ~~according to the European Tire and Rim Technical Organization standard or Japan Automobile Tire Manufacturers Association~~

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~~standard~~, a dimension in a wheel-radial direction between the bead seat and a rim well is 17.0 mm or more, an inclination of the slope wall is 20 degrees or more, ~~[[areal]]~~ aerial size of a total cross section of the tubular rim part is 339.5 mm² or less ~~than 371.5 mm²~~, the first geometrical moment of inertia of the tubular rim part is ~~[[more]]~~ no less than ~~14,054.8 mm⁴~~ 15,117.2 mm⁴, and the second geometrical moment of inertia of the tubular rim part is ~~more~~ no less than ~~38,268.0 mm⁴~~ 43,636.4 mm⁴.

5. (Previously Presented) A light alloy wheel according to claim 4, wherein the thickness of a portion of the ornamental wall, the bead seat, the hump or the slope wall is configured with a modified thickness with respect to a thickness of a remainder of the ornamental wall, the bead seat, the hump or the slope wall and the portion is comprised of a flat wall and/or a curved wall so as to increase the first and the second geometrical moments of inertia.

6. (Previously Presented) A light alloy wheel according to claim 4, further comprising hollow spokes jointed at joints to the tubular rim part, wherein the tubular rim part has an opening at each of the joints between the hollow spokes and the tubular rim part, so that cavities of the hollow spokes communicate with the cavity in the tubular rim part.

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7. (Previously Presented) A light alloy wheel according to claim 4 or 5, further comprising hollow spokes jointed at joints to the tubular rim part, wherein around the joints between the cavity in the tubular rim part and the hollow spokes, a portion of the ornamental wall, the bead seat, the hump or the slope wall is configured with a modified thickness with respect to a thickness of a remainder of the ornamental wall, the bead seat, the hump or the slope wall and the portion is comprised of a flat wall and/or a curved wall so as to increase the first and the second geometrical moments of inertia.

8. (Cancelled)

9. (Previously Presented) A light alloy wheel according to claim 4, wherein the ornamental wall is at least partly, convex outwardly.

10. (Previously Presented) A light alloy wheel according to claim 4 or 5, further comprising hollow spokes jointed at joints to the tubular rim part, wherein- around the joints augmentation and/or trim-wise rounding is made on inner faces of the hollow spokes and/or the tubular rim part.

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11. (Previously Presented) A light alloy wheel with an inner rim having a tubular rim part that is constructed as in the tubular rim part on the outer rim as recited in claim 4.

12. (Currently Amended) A light alloy wheel according to claim 4, wherein the aerial size of the total cross section of the tubular rim part is 298.2 mm² or less, ~~and the first geometrical moment of inertia of the tubular rim part is no less than 15,117.2 mm⁴, and the second geometrical moment of inertia of the tubular rim part is no less than 43,636.6 mm⁴.~~

13. (Previously Presented) A light alloy wheel according to claim 6, wherein around the joints augmentation and/or trim-wise rounding is made on inner faces of the hollow spokes and/or the tubular rim part.

14. (Cancelled)

15. (New) A light alloy wheel according to claim 4, wherein the aerial size of total cross section of the tubular rim part is 310.5mm² or less.

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16. (New) A light alloy wheel according to claim 4, wherein thicknesses of the ornamental wall is smaller than that of each of the bead seat, the hump and the slope wall.

17. (New) A method of designing a light alloy wheel that is formed by casting technique and configured for a four-wheel automobile, with an outer rim having a tubular rim part formed of a bead seat, a hump, a slope wall, comprising:

arranging an outer rim formed of a bead seat, a hump and a slope wall;

arranging an ornamental wall on a side opposite to a tire-mounting side of the outer rim and bridging from a first juncture (J1) between a first extension (E1) from a tire-mounting-side contour (BTC) of the bead seat and an exterior contour of the rim to a second juncture (J2) between a second extension (E2) from a tire-mounting-side contour (STC) of the slope wall and the exterior contour of the rim, so as to form a tubular rim part having a cavity that is defined by the bead seat, the hump, the slope wall and the ornamental wall;

assuming an imaginary solid rim part as defined by the first and second junctures and consisting of the bead seat, the hump and the slope wall;

setting a shape and a thickness of the bead seat, the hump, the slope wall, the ornamental wall of the tubular rim part so that:

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(a) a ratio of cross-sectional area of the tubular rim part to that of the solid rim part is no more than 100%;

(b) a first geometrical moment of inertia of the tubular rim part about an axis that is parallel to an axis of the light alloy wheel and run through centroid of a cross section of the tubular rim part is no less than

a geometrical moment of inertia of the imaginary solid rim part about an axis that is parallel to the axis of the light alloy wheel and run through a centroid of a cross section of the solid rim part;

(c) a second geometrical moment of inertia of the tubular rim part, about an axis that is vertical to the axis of the light alloy wheel and run through centroid of a cross section of the tubular rim part, is no less than a geometrical moment of inertia of the imaginary solid rim part, about an axis that is vertical to the axis of the light alloy wheel and runs through the centroid of a cross section of the solid rim part;

(d) the thickness of the bead seat, a hump, a slope wall, an ornamental wall is in a range of 2.3 mm to 4 mm;

(e) the cavity is substantially parallelepipedal in cross section;

(f) a dimension in wheel-radial direction between the bead seat and the rim well is 17.0 mm or more;

(g) an inclination of the slope wall is 20 degrees or more;

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(h) aerial size of total cross section of the tubular rim part is 339.5mm^2
or less;

(i) the first geometrical moment of inertia of the tubular rim part is no
less than $15,117.2\text{mm}^4$; and

(j) the second geometrical moment of inertia of the tubular rim part is no
less than $43,636.6\text{mm}^4$.